

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Group: Attorney Docket # 1966

Applicant(s) : DIETRICH, J., ET AL

Serial No. :

Filed :

For : WIPER BLADE FOR CLEANING VEHICLE
WINDOWS

SIMULTANEOUS AMENDMENT

January 18, 2002

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application
please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified
application.

With the present Amendment applicant has amended the claims so as to eliminate
their multiple dependency.

[illegible]


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Claims

1. A wiper blade (10) for windows, particularly of motor vehicles, having an elongated, rubber-elastic wiper strip (14), which can be placed against the window (22) and is connected in a longitudinally parallel fashion to an elongated, spring-elastic support element (12), which has a connecting device (16) for a wiper arm (18) and has two band-like spring strips (28, 30), which are parallel to each other and are disposed in a plane spaced a distance (26) apart from the window (22) and whose one, inner longitudinal edges (32) disposed close to each other are spaced a distance (34) apart from each other, and the wiper strip, which has a uniform cross section over its longitudinal span, has a strip-like wiper lip (101), which can be placed against the window and which, by means of a narrow intermediary strip (102) that is formed by opposing groove-like constrictions (106), is connected to a covering strip (104) secured to the support element (12), and the spring strips secure the wiper strip, characterized in that each of the two inner longitudinal edges (32) of the spring strips (28, 30) is disposed in one of the two groove-like constrictions (106) of the wiper strip (100), where the width of the constriction grooves (106), at least over an outer partial region, is greater than the thickness of the spring strips (28, 30).

2. The wiper blade according to claim 1, characterized in that the lateral defining surface (108, 110) of the groove-like constrictions (106) diverge from the intermediary strip (102) to the longitudinal sides of the wiper strip (100).

3. The wiper blade according to claim 2, characterized in that one lateral defining surface (110) of the groove-like constrictions (106) has a spherical course, viewed in cross section.

4. The wiper blade according to claim 2, characterized in that both lateral defining surfaces (108, 110) of the groove-like constrictions (106) have a spherical course, viewed in cross section.

5. The wiper blade according to [one of claims 1 to 4] claim 1, characterized in that the wiper lip (101) is provided with a completely closed longitudinal conduit (118).

6. The wiper blade according to [one of claims 1 to 5] claim 1, characterized in that an air gap remains between the respective opposing longitudinal edges (32) of the spring strips (28, 30) and the respectively adjacent longitudinal sides of the intermediary strip (102).

7. The wiper blade according to [one of claims 1 to 6] claim 1, characterized in that each spring strip (28, 30), at least with a central edge strip, protrudes from its groove-like constriction (106).

8. The wiper blade according to [one of claims 1 to 7] claim 1, characterized in that the two spring strips (28, 30) are embodied as separate components.

9. The wiper blade according to [one of claims 1 to 7] claim 1, characterized in that the two spring strips (28, 30) are connected to each other by at least two crosspieces (36, 38) disposed at their end sections, and in that each crosspiece has a middle section (42), which extends spaced a distance (44) apart from the upper band surface (11) of the spring strips, thus producing bridge-like crosspieces, where the distance (34) between the two longitudinal spring strips (28, 30) is less than the bridge width (46).

10. The wiper blade according to claim 8, characterized in that the crosspieces (36, 38) are embodied as separate components and are affixed to the two spring strips (28, 30).

11. The wiper blade according to [one of claims 9 and 10] claim 9, characterized in that the crosspieces (36, 38) are attached to the upper band surfaces (11) of the two spring strips (28, 30).

12. The wiper blade according to [one of claims 9 to 11] claim 9, characterized in that the length of the spring strips (28, 30) is greater than the length of the wiper strip (14 or 100).

13. The wiper blade according to [one of claims 9 to 12] claim 9, characterized in that a crosspiece (36, 38) is disposed at least at each end section of the two associated spring strips (28, 30).

14. The wiper blade according to [one of claims 9 to 13] claim 9, characterized in that a crosspiece disposed in the middle region of the two associated spring strips (28, 30) is embodied as part (16) of a connecting device (16) for connecting the wiper blade (10) to the wiper arm (18).

15. The wiper blade according to [one of claims 13 or 14] claim 13, characterized in that at least one of the two crosspieces (36, 38) disposed at one of the respective end sections of the spring strips (28, 30) has a stop (74), which is connected to its middle section and partially covers the adjacent end of the wiper strip (14 or 100).

16. The wiper blade according to [one of claims 9 to 15] claim 9, characterized in that each crosspiece (36, 38) disposed at the end sections of the two spring strips (28, 30) is provided with a covering cap (82) preferably made of plastic.

17. The wiper blade according to [one of claims 1 to 9] claim 1, characterized in that the thickness (46 or 112) of an intermediary strip (52 or 102) provided between the two longitudinal grooves (54, 56, or 106) in the wiper strip (14 or 100) is smaller than the distance (34) between the adjacent longitudinal edges (32) of the two associated spring strips (28, 30).

Claims

1. A wiper blade (10) for windows, particularly of motor vehicles, having an elongated, rubber-elastic wiper strip (14), which can be placed against the window (22) and is connected in a longitudinally parallel fashion to an elongated, spring-elastic support element (12), which has a connecting device (16) for a wiper arm (18) and has two band-like spring strips (28, 30), which are parallel to each other and are disposed in a plane spaced a distance (26) apart from the window (22) and whose one, inner longitudinal edges (32) disposed close to each other are spaced a distance (34) apart from each other, and the wiper strip, which has a uniform cross section over its longitudinal span, has a strip-like wiper lip (101), which can be placed against the window and which, by means of a narrow intermediary strip (102) that is formed by opposing groove-like constrictions (106), is connected to a covering strip (104) secured to the support element (12), and the spring strips secure the wiper strip, characterized in that each of the two inner longitudinal edges (32) of the spring strips (28, 30) is disposed in one of the two groove-like constrictions (106) of the wiper strip (100), where the width of the constriction grooves (106), at least over an outer partial region, is greater than the thickness of the spring strips (28, 30).

2. The wiper blade according to claim 1, characterized in that the lateral defining surface (108, 110) of the groove-like constrictions (106) diverge from the intermediary strip (102) to the longitudinal sides of the wiper strip (100).

3. The wiper blade according to claim 2, characterized in that one lateral defining surface (110) of the groove-like constrictions (106) has a spherical course, viewed in cross section.

4. The wiper blade according to claim 2, characterized in that both lateral defining surfaces (108, 110) of the groove-like constrictions (106) have a spherical course, viewed in cross section.

5. The wiper blade according to claim 1, characterized in that the wiper lip (101) is provided with a completely closed longitudinal conduit (118).

6. The wiper blade according to claim 1, characterized in that an air gap remains between the respective opposing longitudinal edges (32) of the spring strips (28, 30) and the respectively adjacent longitudinal sides of the intermediary strip (102).

7. The wiper blade according to claim 1, characterized in that each spring strip (28, 30), at least with a central edge strip, protrudes from its groove-like constriction (106).

8. The wiper blade according to claim 1, characterized in that the two spring strips (28, 30) are embodied as separate components.

9. The wiper blade according to claim 1, characterized in that the two spring strips (28, 30) are connected to each other by at least two crosspieces (36, 38) disposed at their end sections, and in that each crosspiece has a middle section (42), which extends spaced a distance (44) apart from the upper band surface (11) of the spring strips, thus producing bridge-like crosspieces, where the distance (34) between the two longitudinal spring strips (28, 30) is less than the bridge width (46).

10. The wiper blade according to claim 8, characterized in that the crosspieces (36, 38) are embodied as separate components and are affixed to the two spring strips (28, 30).

11. The wiper blade according to claim 9, characterized in that the crosspieces (36, 38) are attached to the upper band surfaces (11) of the two spring strips (28, 30).

12. The wiper blade according to claim 9, characterized in that the length of the spring strips (28, 30) is greater than the length of the wiper strip (14 or 100).

13. The wiper blade according to claim 9, characterized in that a crosspiece (36, 38) is disposed at least at each end section of the two associated spring strips (28, 30).

14. The wiper blade according to claim 9, characterized in that a crosspiece disposed in the middle region of the two associated spring strips (28, 30) is embodied as part (16) of a connecting device (16) for connecting the wiper blade (10) to the wiper arm (18).

15. The wiper blade according to claim 13, characterized in that at least one of the two crosspieces (36, 38) disposed at one of the respective end sections of the spring strips (28, 30) has a stop (74), which is connected to its middle section and partially covers the adjacent end of the wiper strip (14 or 100).

16. The wiper blade according to claim 9, characterized in that each crosspiece (36, 38) disposed at the end sections of the two spring strips (28, 30) is provided with a covering cap (82) preferably made of plastic.

17. The wiper blade according to claim 1, characterized in that the thickness (46 or 112) of an intermediary strip (52 or 102) provided between the two longitudinal grooves (54, 56, or 106) in the wiper strip (14 or 100) is smaller than the distance (34) between the adjacent longitudinal edges (32) of the two associated spring strips (28, 30).